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# THE FARM INDEX

U.S. Department of Agriculture/April 1971

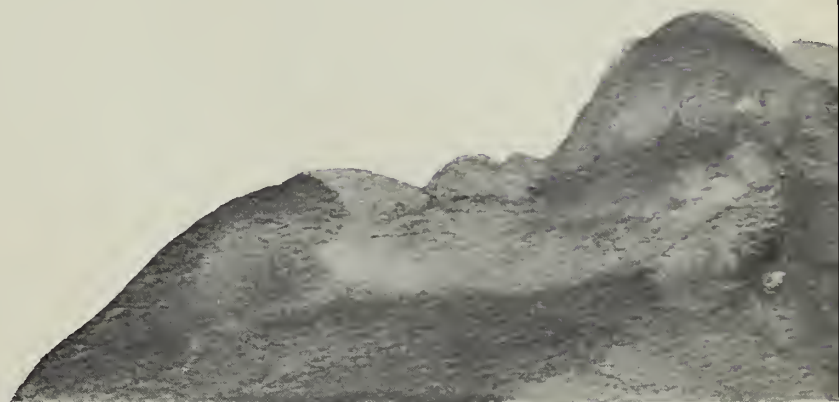
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CURRENT SERIAL RECORDS

THE SWITCH IN FARM FREIGHT PAGE 12





# Outlook

As the first quarter, 1971, draws to a close, economists have a better idea how the record will read for the year as a whole. They also stress that this year's outlook contains more "ifs" than usual. A big one is the **Southern corn leaf blight**. Will it strike again in '71?

The situation, as outlined by one speaker at the 49th Annual Agricultural Outlook Conference held in Washington, D.C. this past February:

The fungus can withstand very low temperatures. Tests in many States show it is still "fully viable in debris on the soil surface," especially in Florida where viable wind-blown spores are now being collected. And normal wind currents blow from the Southeast up the Mississippi Valley, providing a vehicle for the northward movement of spores. The weather in 1970 was good for corn yields—as well as for blight infection. Equally favorable conditions in '71 could set the stage for a recurrence.

However, a higher percentage of blight-resistant hybrid seed will be sown this year in the South. Also, spores of the blight thrive under wet conditions; by the time the corn emerges, the spores could be rendered ineffective after the onset of dry weather. Fungus in infected debris must undergo 6-8 infection cycles before spores multiply to the point where they can cause an epidemic.

"Unfortunately," concluded George Sprague, a prominent USDA corn researcher, "both arguments involve a considerable degree of uncertainty and speculation."

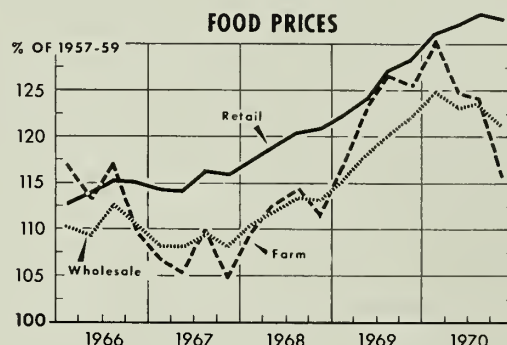
**Food expenditures** in '71 won't match last year's 8½-percent rate of growth because of bigger food supplies combined with some slowdown in the rise in retail food prices. A 5-percent gain in total spending seems reasonable assuming consumers' after-tax incomes go up about 7 percent.

**Retail food prices** will be under less pressure this year, again due to larger food supplies plus the prospect of smaller increases in margins for processing and marketing. The rate of price increase may average only half of last year's 5½ percent.

Prices will rise through the first 3

quarters because of seasonal factors and some inflationary pressures still evident in the economy. In the fourth quarter, prices are expected to level off, but still will be higher than a year earlier. Grocery store prices may rise only 1-2 percent for the year, compared with 4 percent in '70. Eating-out prices will continue upward but at less than the 7½-percent increase of last year.

The effect of inflation on food prices vis-a-vis farm prices is shown by the trend lines in this chart. The "farm food prices" are those received for food originating on U.S. farms, in other words, the farm value.



Between the end of 1968 and the first quarter of 1970, farm prices increased 17 percent. Prices dropped just as fast during the rest of '70 and the fourth quarter average was nearly the same as in early '69. Marketing margins meanwhile advanced at an unusually rapid clip.

The reason had to do with higher wages and costs of other goods and services bought by marketing firms. Inflation in marketing charges in this period more than offset the effect of bigger food supplies that caused farm prices to decline. It's also apparent that productivity in marketing over the past few years has risen less than the increases in earnings of employees, which advanced 6 percent in 1969-70.

**Gross farm income** in 1971 will grow by about \$1 billion from last year's \$56.2 billion, with most of the increase coming from crop receipts. Realized net farm income, however, will trail 1970's \$15.8 billion, reflecting the persistent rise in farm expenses. Realized net income per farm will probably be about the same as in 1970.

**Farm production expenses** may go up around \$1.5 billion—about 4 percent above the \$40.4 billion of 1970. Major items in the breakdown—

**Purchased feed.** Feed grain prices to remain near current levels through midyear. Changes in the last half hinge on the yet uncertain prospects for feed grain production. Overall price increase for current season is estimated about 15 percent above the 1969/70 average.

**Feeder livestock.** For feeder pigs, little change expected through spring, but prices should strengthen this fall if hog numbers decline as anticipated. For feeder cattle, look for the usual seasonal rise in spring prices, although this year the increase will probably be tempered by a bigger supply, higher feed costs, and recent lower returns to cattle feeders.

**Hired farm labor.** Wage rates seen higher in '71, assuming continued inflation, keen competition for skilled employees, and further unionization of farm workers. Average composite wage rate was \$1.42/hour in 1970, up 9 cents from '69.

**Fertilizer.** Estimated 10-12 percent above the '70 levels, due to steepening production costs incurred by manufacturers.

**Interest rates.** Somewhat lower on operating loans, but softening of wholesale rates may take time to show up in rates charged to farmers. By mid-1971, in many areas the decline will amount to 1 percentage point, although it's unlikely rates will fall to pre-1968 levels. Money for farm mortgages will be in greater supply this year, and interest rates may drop ½ to 1 point by mid-summer.

**Supplies** of major field crops—feed grains, wheat, soybeans, and cotton—have been drawn down, and prices in the 1970/71 marketing year may average 5-7 percent above a year earlier. Supplies of food crops—such as citrus, fresh vegetables, and potatoes—are larger this year. The freezes in early '71 damaged certain citrus and vegetables, but prospective output of fresh vegetables is still above a year ago and citrus is up more than a tenth. Prices for fresh food crops are therefore averaging under the 1970 levels. For pro-

cessed vegetables, prices throughout the summer are expected to hold generally firm to strong for most items.

**Livestock production** will average higher—perhaps 2½-3 percent—and livestock product prices a bit lower. Output will continue larger for eggs, and milk, and for turkeys at least into late 1971. For beef, cattle on feed and indicated marketings point to little change in the first half compared with a year earlier. Hog production is expected to taper off in the latter part of this year, as indicated by farrowing plans for spring pig crops. Broiler output in the first half of '71 will be moderately smaller than last year.

**Stocks** of at least four commodities—or commodity groups—are expected to fall to the lowest levels of recent years.

**Cotton:** Year-end supplies for the current August-July marketing year will represent the smallest carryover since 1952—around 4½ million bales, down a little over 1 million from last summer.

**Wheat:** With a total disappearance about 1.6 billion bushels—as seems likely—the June 30 carryover may be sharply below the 885 million of June 1970, or around 700 million bushels and the smallest carryover since 1968. The decline itself is the biggest since 1963/64.

**Feed grains:** Carryover into 1971/72 (year begins in October for sorghum and corn, and July for oats and barley) will be the smallest since the mid-1950's.

**Soybeans:** Usage this marketing year (September-August) will exceed production for the second consecutive year. By September next, the carryover will be equal to hardly a month's operating level for processors.

**Farm product exports** in 1970/71 (July-June) will run well above \$7 billion—a new record. It compares with \$6.6 billion in 1969/70. Wheat exports, reflecting Europe's poor wheat crop and tighter feed grain supplies, may be one-fourth higher than last year's 606 million bushels. But feed grain exports are projected 5-10 percent below the 21.2 million tons of 1969/70.

## FARM

## RURAL

## MARKETING

## CONSUMER

## FOREIGN

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## Features

- 4 **Farming The Forest**  
Crop and livestock producers own nearly half of Nation's "woodlot"
- 8 **Environment: Using The Land**  
What the shifts in land use mean for agriculture
- 12 **The Big Switch In Farm Freight**  
Farm products leave the tracks for the highways
- 15 **Soybeans In The Plant Protein Spectrum**  
When cheaper sources of protein are called for, soybeans fill the bill
- 18 **India**  
An age old land tenure system is being revamped

## Departments

- 2 **Outlook**
- 21 **Recent Publications**
- 22 **Article Sources**
- 23 **Economic Trends**

Numbers in parentheses at end of stories refer to sources listed at end of issue.

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# Farming the Forest



**E**nough wood was used in the United States in '69 to build a 104,000 mile-boardwalk 1 foot thick and 24 feet wide: a boardwalk that would reach nearly halfway to the moon.

By the year 2000, we may be using so much wood that our hypothetical promenade could extend all the way from Cape Kennedy to the lunar hills of Fra Mauro.

Cuttings from "little forests" or woodlands on American farms provided close to half of the Nation's 1969 wood supplies, and swelled farm family coffers by about \$238 million. (This was money earned only on holdings that produce enough crops or livestock to meet Census criteria for a "farm.")

Of course, wood is not measured by a mile. So in more prosaic terms, it now takes over 13.2 billion cubic feet of wood yearly to meet our needs—saw logs and veneer, pulpwood and poles, piling and toothpicks, flooring and fences, railroad ties and picnic tables, and hundreds of other wood products.

These products are worth over \$1 billion on the stump. For an idea of

their final value, multiply this by 25, because an average of \$24 is added to every dollar of stumpage by the time a product gets to the final user.

Demand for most forest products seems destined to grow rapidly.

Fuelwood is one of the few probable exceptions. Its usage has been whittled to a splinter of that in bygone days. Even so, total U.S. demand for wood products 30 years from now is projected to be nearly  $2\frac{1}{2}$  times that of today.

Can our diminishing endowment of trees grow fast enough and big enough to keep up with the needs of our burgeoning population?

Many economists and foresters say that attainment of this goal depends in large part on America's farmers, since they hold so much wooded area.

About one-third of all our U.S. land is classified as forest land: 760 million acres. Not all of this is really "timber" land. Some is wild—a mix of trees, brush, or range. Some is rock-surfaced above the timberline. Some has been set aside solely for public uses, such as national parks or wildlife reserves.

Public lands account for 44 percent of our total forest land. About 9 percent is held by the forest industry (enterprises deriving their main income therefrom).

*The biggest part—47 percent —belongs to farmers and miscellaneous private landowners with relatively small holdings.*

Altogether our forest lands offer a bounty of goods and services. They may not include commercially valuable timber, but certainly an abundance of open space, water, wildlife, and esthetic and recreational opportunities. Also, about 250 million acres of forest land are grazed by domestic livestock.

About 510 million acres are deemed capable of yielding industrial wood crops. In the North and South, about three-fourths of these lands are owned by small private owners—many of them farmers; in the West, about one-fifth.

Over half the \$238-million farm sales of forest products in 1969 were made by southern farmers.

"Woodlots" on North Carolina farms brought in \$30.4 million; in Georgia, \$26 million (more than the value of cotton, about the same as pecan crops, and twice peach sales); in Alabama, \$13.4 million; and in Mississippi, \$15 million.

More generally speaking, what can a farmer expect in financial returns from his forest holding?

An increase in land value is one thing he might expect from developments of the past decade. The \$30 to \$40 per acre base value of woodland has jumped into three figures over a short time span.

Timber values have sharply accelerated over the same period. And it is sales of timber that will give the farmer-with-forest the most profit. How much, of course, will depend on where he lives, his markets, the quality of his timber stand, amount of growing stock etc.

In parts of the western Rocky Mountain area, a farmer may be



hard pressed to even find a market for his timber. He'll often be lucky to just break even and cover such out-of-pocket costs as taxes.

In Maine, on the other hand, roadside returns have traditionally run between \$7.00 to \$11.50 per acre in 1970 dollars (including stumpage and the landowner's labor).

In Arkansas, on good pine growing lands, a net yearly return of \$15 to \$20 per acre is possible under intensive management. A good coastal Douglas fir farm woodlot, on a good site and in its prime growing years, may earn as much as \$50 per acre a year.

Wherever he might be, a farmer would be fairly lucky to have a 40-acre piney woods on good soil with a good stand (an above-average situation). The owner's capital investment, time, and effort on this small woodlot should net \$600. With little or no financial or management inputs, he can let nature take its course and probably net \$200 or \$300 annually from the 40 acres.

If the landowner has 400 acres or 4,000 acres of timber on his farm, personal and financial incentives would then tempt him to turn his back on his crops and livestock—and perhaps abdicate the title of “farmer”.

Timber, of course, is only one forest product. Many others, lesser known, can also give the woodland owner some supplementary farm income. Such products range from pine mulch and fireplace logs to medicinal barks and edible berries—not to mention Christmas trees and homecrafted wood novelties.

Less tangible, with profits less predictable, are potentials stemming from public pressure for private wooded “playgrounds”: campsites, fee-fishing spots, nature trails or hunting grounds. (In the hill country of Texas, for example, hunting leases now bring around \$1 a year per acre, or \$150 per gun, for complete hunting privileges.)

From both economic and social aspects the woodland horizon is broad and should be bright for the 4 mil-

### Farm-Forest Services

Do you have a “little forest” or patch of woods on your farm? Would you like some help in making better, more profitable use of it?

Here are some experts who can probably assist you or direct you to a close source of help.

—National Forest Ranger (located in any national park or forest.)

—State government: Service Forester, District Forester, Extension Forester, Soils Conservationist, Utilization and Marketing Specialist, and Rural Area Development Committee.

—County Agent or County Forester.

—Forestry schools (at State colleges or universities).

In addition, there are at least 70 available government publications. For a list, write to the Superintendent of Documents, Washington, D.C. 20402, and ask for *Price List 43* (it's free), *October 1970, Forestry: Managing and Using Forest and Range Land . . . Including Timber and Lumber, Ranges, and Grazing, American Woods*. (2)

lion individuals who own various parts of it.

Trouble is, if you are an average farmer you may not have the know-how or monetary incentive to manage your “little forest” the way you do your crops and livestock.

Your returns from your woodlot are therefore relatively small. Moreover, average yearly growth per acre of your trees isn't anywhere near what it could be. You are not adding as much as you might to the Nation's needed wood supplies, nor to your own wallet either.

You *can* in many cases do something about it. For instance:

- Inventory your woodland resources . . . types of trees . . . wildlife . . . flora . . . water assets.

- Improve your timber stand. Plant genetically improved stock . . . thin . . . fertilize . . . prevent fires . . . control pests and disease.

- Case the market. Determine the needs of local industries. Plan ahead. Time cuts to take advantage of markets offering the best price. Investi-

gate possibilities for hard-to-market species, sizes, and grades of forest products.

- Harvest efficiently and judiciously. Measure the volume of your harvest as carefully as you figure the “quick” profits. Consider the savings if you can do your own harvesting, using your farm equipment.

Management and marketing information and services are available, often free, from a number of sources. Your State-employed forester is probably one of the best for on-the-spot help.

Meanwhile, the U.S. Department of Agriculture has responded to a recent Presidential directive by developing a national incentives program to help the private forest landowner.

Pilot loans, cost-sharing, and other special incentives are all a part of the proposals. They have three main goals: to upgrade the quality and quantity of timber harvested from nonindustrial forest lands; to enhance the Nation's environment; and to recompense the private woodland owner for benefits the public receives. (1)

## Dairy Chores Lighter In Lake States

Larger but fewer dairy herds. Less and less labor to do dairy chores. These trends in the Lake States—Michigan, Minnesota, and Wisconsin—are expected to be even more pronounced by 1980 than today.

University of Minnesota economists, in cooperation with the Economic Research Service, have projected future labor needs for the Lake States' dairy industry. Here's the way they see the situation 10 years from now:

—The number of dairy herds is expected to drop to about 76,000 from about 148,000 in 1967.

—Herds of less than 30 cows will be a rarity.

—Herds of 30 to 49 cows will remain the predominant size group.



—Herds with 50 or more cows will double in number.

—Only about 76,000 farm operators and their families will be involved in dairy production (73,000 fewer than in 1967.)

—Total dairy chore labor will be reduced by 33 percent or about 53,000 man equivalents (160,000 man equivalents were used in 1967).

—Labor per cow per year will decrease to 80 hours in 1980 (it was 95 hours in 1967).

Even with all these changes, 1980 milk production in the Lake States is expected to be about the same as now—around 33 billion pounds. (3)

## “Backgrounding” Gains In Colorado

Contract cattle feeding is catching on with Colorado ranchers.

The practice has also spread to western Oklahoma and into the High Plains of Texas, where oilmen's spare cash has been invested in contract farming.

In what's known as “backgrounding,” Colorado ranchers and owners of large fattening feedlots contract with cattle feeders to have their calves and yearlings fed to a weight of 700–800 pounds—or to be fed for a specified period.

The cattle are then ready for a finishing ration. And, they are accustomed to life in a feedlot.

(Cattle put into the feedlot direct from the range, sometimes lose weight while getting acclimated. Obviously, it takes time—and costs money—to recover this weight.)

Backgrounding feedlots are big. Many carry over 5,000 head at a time. They custom feed as well as background. And they are new—average length of operation is just over 3 years. One-third to two-thirds of the animals fed in 1969/70 were steers.

In contrast to backgrounding, ranchers with breeding operations may contract to “winter” their heifers in feedlots, so the cattle will be hardier and heavier at breeding time

in the spring months ahead.

Other ranchers, instead of selling weaners in the fall, have their calves custom fed in feedlots through the winter, then either sell them as short yearlings or turn them out on grass for the summer.

Animals that are wintered are primarily steer calves weighing under 500 pounds. Cost of gain and miscellaneous expenses may run 22 cents a pound.

The capacities of winter feedlots in Colorado range from 250 to 8,000 head, compared with the capacity of standard feedlots of 20,000 head or more.

Tremendous expansion in Colorado feedlots started 5 or 6 years ago. They attracted corporate investors, and many ceased being family enterprises.

This year, grain prices and other costs of cattle feeding have jumped, and the big expansion has leveled off for the time being. Feeder cattle have been upgraded; their price has jumped too.

However, demand is steady, so contract cattle feeding will probably remain a farming option. (4)

## Foggy Weather Wins Heart Of Fussy Artichoke

Anybody can try to grow artichokes, but chances are he won't succeed. Among other exacting requirements, this crop needs a climate that's cool, yet frost-free, with plenty of foggy days.

One place artichokes do proliferate is a five-county coastal area south of San Francisco, Calif. Ninety-nine percent of the U.S. artichoke crop comes from there. In fact, the “Artichoke Capital of the World” is now Castroville, in Monterey County.

The artichoke came to California from Europe in the late 1800's. The leading commercial variety, Green Globe, is recognized by its deep green heads of fleshy, pointed leaves with an oily “heart” at the center. The thistle, or “choke”, is what surrounds the heart.

Artichoke production reached a peak of 73 million pounds in 1967. Last year's harvest was 671 million pounds (valued at \$7 million) from 11,000 acres.

U.S. consumption of fresh artichokes is around .3 (three-tenths) pound per person—50 percent more than it was during the 1950's. (5)

## South and West Emerging Strong in Egg Picture

As recently as the 1950's the Midwest was considered the hub of the U.S. egg industry. It was also the only major area with egg surpluses. But no longer.

Now, the South and Far West have gained in egg production and are a big part of the picture. They supply most of the table eggs for deficit areas in the Mountain States and the Northeast—markets whose deficits were formerly filled mainly by Midwestern producers.

Not only has the Midwest lost ground in its traditional markets, but lately other producing regions—particularly the South—have been shipping eggs into the Midwest proper.

Egg production during the 1960's declined in six of the eight Midwestern States. Indiana and Michigan were the exceptions.

Despite the Midwest's plentiful feed supplies, this competitive advantage has been partly eroded by inefficiencies in the local feed milling and chick hatching industries.

A predominance of small, scattered flocks—resulting in high assembling and packing costs—has further weakened the Midwest's position in going after the business in egg-deficit areas.

Besides the loss of egg markets, production decreases may also reflect farmers' lagging interest in this line of agriculture.

Output of the Midwest's major crops went up substantially during the 1960's. And among the poultry enterprises, turkeys have been regarded as a more profitable alterna-



tive to layer chickens or broilers.

This situation could well change in the decade ahead. But for the time being—and considering all factors—the South and West appear to enjoy a competitive advantage over the Midwest in egg production and marketing.

In the Western region roughly three-fourths of the egg production comes from California. It is also far and away the biggest egg State in the country, with 1969 cash receipts of \$238 million.

California's advantages stem from its many large flocks, highly integrated operations, and efficiencies in milling and poultry hatching. Also, contract marketing is widespread.

All of which add up to savings in production and marketing costs. Production costs in California are among the Nation's lowest. Despite some disadvantages in having to import major feed ingredients, the advantages of buying in volume have helped keep feed costs down.

In the South, Georgia is the top egg producer and second in the Nation (1969 cash receipts of \$214 million). North Carolina is third (\$127 million).

The southern egg industry has followed the pattern set by the broiler industry—founded on contract production and vertical integration. The notable difference is that in the egg industry large owner-integrated operations developed simultaneously with contract production.

As in California, higher costs of some feedstuffs have been partly offset by purchasing in volume, concessions on freight rates, and improvements in the milling and hatching industries.

Other factors in the rise of southern egg advances include the availability of low-cost labor, and a need for new agricultural industries at a time when output of the region's major crops has been stabilizing or declining.

The four principal egg-producing States in the Northeast—Pennsylvania, New York, Maine, and Con-

necticut—maintained or expanded their production during the sixties. But the Northeast's share of U.S. output has declined.

Feed costs and wage rates are higher than in other regions. Marketing costs, however, are lower, because of shorter distances to market and the use of more direct marketing channels. (6)

## As Farms Grow, Custom-Hire Jobs Wane

As farms become larger and more specialized it generally makes economic sense for them to own most, if not all, of the equipment they need to handle mechanical operations.

The trend toward farm expansion in New York State has reduced the use of custom hire operations. Increased opportunities to lease and to rent farm machinery have also had an adverse affect upon the market of the custom hire operator. During the 1960's, machine hire expenses accounted for less than 2 percent of total farm expenditures in New York State.

As the market for custom hire operations decreases, it appears that an increasing percentage of the custom work is being done either by farmers attempting to make more efficient use of their farm equipment, or by co-ops and firms that sell a service along with their product for an additional fee.

Nonetheless, machine custom hiring does play a useful role in New York agriculture. Many firms still find that for specific jobs it is more economical to hire the work than to invest in the necessary machinery to do the job themselves. Furthermore, as new machines are developed, custom operations often serve to introduce the equipment and pave the way for its general use.

To help meet a growing demand for information about current custom rates being charged in New York, high school vocational agricultural teachers and county extension agents interviewed over 160 men in 40 counties who had performed

custom jobs during 1960 and 1970.

The rates charged in 1969-70 generally varied with working conditions. The rates reported here are considered "typical."

The survey showed that charges for practically all of the common custom jobs have gone up since 1963. But with the development of larger and more efficient equipment, the elimination of many inefficient sized fields, and a relatively tight market for custom hire operations, the increases in custom rates have not kept pace with general increases in price rises.

Among the custom hire operations most frequently used by New York farmers are fertilizer application, plowing, corn planting, combining, field chopping and silo filling. Bulldozing and backhoeing are also often done on a custom hire basis.

In the grape industry the use of custom machine operations has increased. Development of the mechanical grape harvester during the late 1960's has opened a field for custom operations that did not previously exist.

Custom weed spraying was one of the most common jobs reported. A typical rate, excluding material costs, ran about \$2.50 an acre, but the cost of spraying grapes was \$9 an acre.

If the farmer wanted to spray from the air he could pay \$2.50 an acre for the standard airplane service or \$3 an acre for a helicopter application.

The typical charge for plowing was \$7 an acre; for corn planting, \$4 an acre; and for grain drilling, \$3 an acre.

Corn could be dried for 15 cents a bushel or \$5 a ton. Drying small grains cost an average of 5 to 9 cents a bushel or as much as \$7 a ton. The same service for beans ran about 30 cents per hundred-weight.

Charges for hay mowing averaged about \$6 an hour. Mow, crush, and swath services cost the farmer about \$5 an acre.

Most custom operators charged \$30 a ton for harvesting grapes. (7)





ENVIRONMENT:

## Using the Land

*Though our land resources appear adequate to provide ample food supply for many years to come, a strong case can be made for wise planning of the way land is used.*

About 1½ million acres have been dropping out of our cropland base each year.

During the 1945-64 period, 54 million acres were abandoned or shifted to noncrop uses. But for every 2 acres that went out, about 1 acre of new cropland was developed. So, on balance the annual reduction came to roughly 1.4 million acres.

However, the land drain is not as bad as it looks. Much of the new land is more productive than that abandoned.

Overall, production increases per acre since the 1940's have more than offset the shrinkage in farmland.

Most significant, the production gains have been outstripping our population's growth rate, currently around 1 percent a year. Population during 1950-70 expanded one-third . . . crop production by over one-half . . . and the per capita agricultural output by 6 percent.

Right now about one-fifth of the Nation's land area is used for crops, or roughly 430 million acres. Another 640 million consists of grassland pasture and rangeland, al-

though some of this has very low carrying capacity for livestock.

But what about next year, and the next 25 or 50 years?

"In the judgement of competent authorities," said Agriculture Secretary Clifford M. Hardin, "the United States has the land, and the ability, to satisfy the food requirements of a population perhaps double the size of today's, provided we plan the use of the land wisely.

"A crucial question arises, however, and policy makers must keep it constantly in mind. It is this: In planning for greater economic, urban and industrial growth, how do we preserve our better farmlands for future needs and at the same time assure adequate land areas for other open space uses?"

Looking at recent trends in land use, it's apparent that urbanization favors the use of the better farmland. Also, a fair-sized chunk of the better quality land is located in those counties within Standard Metropolitan Statistical Areas (SMSA's)—the ones in or nearby a city or community with at least 50,000 people.

In 1964, by the latest data available, the SMSA's had some 17 percent of total farm numbers, and 14 percent of the harvested cropland. The SMSA's also contained about 15 percent of the better land, i.e., of Land Use Capability Classes I, II, and III.

The annual conversion of land to urban uses is around 420,000 acres on the average. Most of this is former cropland, and much of it, probably of Classes I-III. Nationwide estimates have not been made, but a study of urbanization in 98 northeastern counties showed that about 80 percent of the converted land fell into this category.

In the 1950's and most of the 1960's, it was population pressure and high incomes—coupled with readily available mortgage money—that led to large shifts of rural land to urban use. Financing difficulties reduced the level of urban expansion in the late sixties.

How much farmland that urbanization will swallow in the seventies



is anybody's guess. But urban uses per se are only one part of this story. A variety of other uses also compete for rural land—

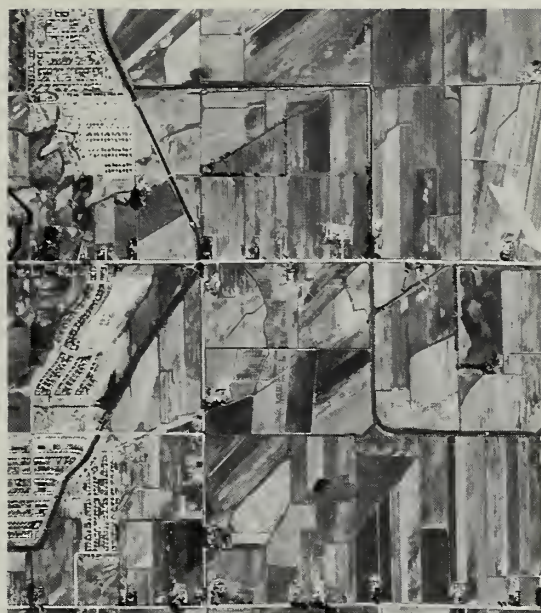
*Highways and airports.* The Interstate Highway System begun in the 1950s' will be completed by the mid-1970's, so the conversion of land to highways may have reached a temporary zenith. Land takeover for airports has increased, but the acres involved are relatively small. Together, highways and airports outside urban areas use some 160,000 acres of new land each year.

*Recreation.* This has been taking ever-increasing quantities of land. Sales of boats, sleeping bags, and tents, have gone up phenomenally in recent years. Travel trailer sales rose tenfold between 1956 and 1966. An estimated 2 million families now own cottages, cabins, and second homes. Over 30 million acres are in national and State parks. Expansion of recreational areas and wildlife refuges in the next decade may involve considerable acreages, but much of this will have only limited direct public use and little of it will come from cropland.

Overall—recreational and wildlife and wilderness uses do not seriously compete with agriculture for land. Most of the land taken for such uses has terrain or drainage features making it unadapted to agriculture. Some competition occurs when wetlands having an exotic ecology or serving as habitat for waterfowl, are drained for agricultural use.

*Water control.* Reservoirs claim about 420,000 new acres each year. The amount has been going up with population.

*Surface mining.* It takes a sizeable bite and leaves ugly scars. Each year the disturbance comes to something over 150,000 new acres, most for excavation or pits and waste or spoil disposal. The rest is taken by mine access roads and exploration activities. As of last year, the total came



Urbanization of this farmland near Idaho Falls, Idaho, shows a typical development pattern for high-value irrigated cropland. Settlement is dense, and the land is kept in production until actually converted to urban use. At left, in 1951; right, 1966.

to over 4 million acres. However, about a million acres of this can be recovered by regrading and revegetation.

The immediate future will probably see an expansion of surface mining because of the rapid demand for electrical power, slow progress in developing nuclear power, increasing costs of deep mining operations, and shifts to low-sulfur coal to minimize air pollution. Also, exports of coal, particularly to Japan, have been picking up in recent years.

*Federal facilities and national defense installations.* For the most part, the acreage has declined slightly since World War II with the disposal of small amounts of surplus acreage. This decline is continuing as military installations are closed for economy reasons; but the acreage is small, and many of the facilities are within the limits of urban areas.

Abandonment and shifts to other uses occurred largely in the States south and east of the Corn Belt, excluding the Delta and southern Florida. Cropland has been converted to grass or forest or abandoned, mainly because of low fertility and features of the terrain not adapted to efficient use of modern machinery.

While all this was happening, ag-

riculture since the mid-1940's picked up an average of well over a million acres a year. The new cropland showed up in several well-defined areas.

Reclamation in Florida was associated largely with combination drainage-irrigation projects, in the Delta with drainage and clearing and in the Texas High Plains, California, and Washington with expanded irrigation facilities. Expansion in northern Montana was owing to improved dryland farming techniques, and throughout the Corn Belt to small-scale drainage, clearing, leveling, and conversion of pasture to cropland. Most of this "new" cropland is more productive than that abandoned.

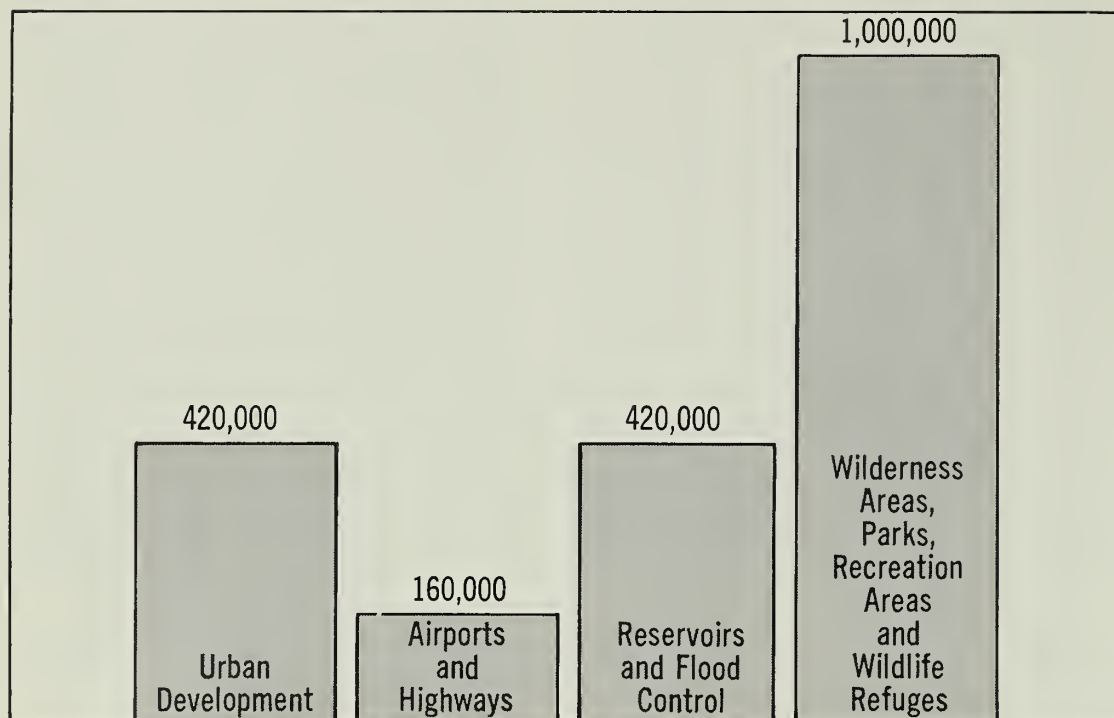
Though our land resources appear adequate to provide ample food supply for many years to come, certain developments would alter the outlook.

For one, the past increases in per-acre yields are attributed to a number of factors—improved varieties, higher use of fertilizer and pesticides, the elimination of less productive land from cropping, and land improvement practices such as drainage and irrigation.

The economists do not have at hand the information necessary to assign to each of these factors its contribution to overall growth in



## 2 MILLION ACRES A YEAR ARE CONVERTED TO NONAGRICULTURE USES



output. However, this much is evident: Future per-acre production gains of, say, 2 percent per year would depend to a considerable degree on continuing increases in uses of farm chemicals on land. If it becomes necessary to curtail usage of chemicals, per-acre yields would be less, and more land would be required to achieve a given level of production.

On the livestock side, questions are being raised about how much beef demand will increase and whether pasture and rangeland would be sufficient to carry all the cattle needed.

Although the trend has been toward greater consumption of grain concentrates in mixed feed rations, demand for beef has been growing even faster than the utilization of grain concentrates. Thus, greater amounts of roughage from pastureland will be required.

One possibility for filling the bigger needs for roughage is to use for pasture the land retired from crop production. Much of this land has higher carrying capacity—if properly developed—than rangeland and pasture now used for grazing. According to projections of the Water Resources Council, the area in permanent pasture could increase to 649 million acres (48 States) from

the 640 million of 1964.

The long-range picture for exports also harbors uncertainties. The acreage equivalent used to produce export commodities has varied widely over the past 20 years, from a low of 31 million acres in 1953 to a high of 77 million in 1963.

Barring sharp increases in exports, there will be sufficient land resources to accommodate them. But exports are difficult to project because of the unpredictable changes in the import and export policies of the world's trading nations, and in the unforeseeable changes in the technologies used by the developing countries.

The evidence to date indicates that much of the land is *not* being used wisely. The same can be said for other exhaustible resources—such as the water bodies needed by wildlife and for recreational uses. Sometimes, the abuses to the land can be rectified:

On a busy summer weekend 10,000 tourists pass through the town of Woodruff, Wisconsin, population 900. Few stop to see Snake Lake. "Snake Lake is an eyesore," said the conservationists. "Nuisance blooms of algae and duckweed appears throughout the summer. Oxygen depletion has killed most of the fish."

Snake Lake is changing, however.

The concerned citizens of Woodruff, working with the University of Wisconsin's Extension Service and the Upper Great Lakes Regional Commission, demolished the old sewage plant that caused the lake to become polluted. Then they pumped the lake of its water, filtered out the contaminants through sandy soil in a nearby field, and the lake is now being replenished with crystal-clear water.

Asked why he was involved in this project, one Snake Lake resident replied: "Well, in the interest of conservation. Here's a lake that has good possibilities of being salvaged or reclaimed. And I have time now that I'm retired, so I saw an opportunity to put something back in the kitty, so to speak."

This kind of local initiative, if carried out to the length and breadth of our 50 States, might soon bring an end to the "environmental crisis."

It is also true that Snake Lake encompasses a mere 14 acres, by contrast to the millions of square miles being paved by the Nation's highways and housing complexes. Unlike Snake Lake, much of this vast area cannot be readily recovered, if at all.

[This is the second in a series of articles on the environment. "Who Pays for What?" will be featured in the next issue.] (8)

## Rural Areas Brace For Energy Hunt

If the Bureau of Mines has correctly read the future, the Nation's needs for energy will more than double by the year 2000. Rural America will know that it's happening.

Many of the new power facilities will be erected well outside the congested cities and suburbs. Rural areas will also be called upon to provide much of the increased fuel sources to be required.

In the mid-1930's, the U.S. used 20 quadrillion Btu's a year. The usage is now up to 60 quadrillion, and is expected to soar to over 160 quadrillion by 2000. (One quadrillion Btu's



—or British thermal units—is the energy equivalent of 965 billion cubic feet of gas, 175 million barrels of oil, or 38 million tons of coal.)

Coal currently accounts for about 20 percent of the Btu's consumed, natural gas and petroleum 75 percent, and hydroelectric power under 5 percent. While the needs for each of these will double in 30 years, the Bureau of Mines projects a 300-fold increase for nuclear power, which now provides only a fraction of 1 percent.

No matter what the source of the fuel, there will be some adverse effects on the environment. Production of coal and uranium tears up the land. In the process of mining the coal, sulfuric acid is produced. In extracting petroleum, brine comes to the land's surface. The acid and brine then re-enter surrounding water courses. Hydro facilities also modify river regimens.

When using coal or petroleum as a fuel supply, power plants expel gaseous wastes into the air. Air pollution is not a problem with nuclear plants, but they produce radioactive waste materials. Natural gas produces little air pollution. However, all four types of fuels produce surplus heat in the process of generating electricity.

The usual practice is to dissipate the heat using neighboring water bodies. And when water temperatures are raised, lower forms of aquatic life may suffer as a consequence. Reproductive processes of certain fish are also affected.

Overall, the energy outlook carries three major implications for rural areas. First, surface mining of coal is bound to increase. By 1965 about 1.3 million acres had already been disturbed, 532,000 being in the North Central States. Acreages there will probably swell substantially, creating additional environmental problems and a need for effective reclamation.

Second, more electric generating plants will be built in rural America in an effort to diffuse chemical and thermal pollution of air and water.

From 237 in 1968, the number of large plants (500 megawatts and up) is projected for the Nation at 492 by 1990. Some 60 percent of these would be using fossil fuel and 40 percent, nuclear. One hundred of the 225 new sites would have facilities of 2,000 megawatts or larger.

Finally, location of large generating plants away from urban concentrations will also mean more, and probably larger, transmission lines transecting the countryside. Most people don't like living near these power structures, although the reasons given are various.

### *The Look of Our Land*

Words can tell the story of how our land is used—but not with the detail and precision of a picture.

With this in mind, the Economic Research Service is publishing a five-volume series of air photos for people who are concerned with the present and future uses of U.S. land.

*The Look of Our Land: An Airphoto Atlas of the Rural United States* includes aerial photographic mosaics and stereo-pairs for the 156 land resource areas in the 48 contiguous States.

Two volumes—subtitled *The Far West* and *North Central* have been issued. Other areas planned for study are the Mountain and Desert Region; Plains and Prairies Region; and East and South Region.

Maps, text, and airphotos combine to show the ways our land is used, according to an established regional and area classification. The area shown in a stereo-pair seems three-dimensional when viewed through a simple pocket stereoscope.

Copies of *The Look of Our Land: An Airphoto Atlas of the Rural United States*—*The Far West* are available only from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, D.C. 20402, for 60c. Single copies of the second volume, subtitled *North Central*, AH-384, are available free from Publications Distribution, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. Larger orders may be bought from GPO for 75c. (2)

One way or another, measures will be taken to avoid an energy crisis. Meantime, more rural land will probably be disturbed. And controversies will heat up over the future locations of generating plants and the routing of transmission lines. (9)

## **“Combos” Play Key Role In Drawing Resort Crowds**

The resort that offers the most attractive “recreation package,” is likely to lure the most clients when summer rolls around.

But how does a resort operator figure out the combination that is likely to be most popular?

If he happens to be in Wisconsin, he can get some guidance from a survey of recreational activities engaged in by 843 vacationing groups—mostly families. Ninety resort operators cooperated in the survey.

Altogether, the vacationers indulged in some 28 different recreational activities—ranging from water-skiing and golf to rock-hunting and nightlife.

But over 83 percent of the groups covered in the survey were primarily interested in only three activities.

Fishing accounted for nearly half of all first choices expressed by the vacationers. The preference was especially heavy in northern areas, while swimming and loafing were relatively more popular at southern resorts. These three activities accounted for 83 percent of all first choices.

To come up with a potentially best-selling package of four activities, the researchers considered 346 different combinations.

For guests at northern resorts, a single package containing fishing-swimming-boating-loafing would appear to satisfy the desires of the greatest number of guests. An alternative combination would be swimming-boating-sightseeing-hiking.

At southern resorts, a package offering swimming-sightseeing-boating-loafing would probably pull in the most customers. (11)



# The Big Switch in Farm Freight

*Railroads' freight revenues are coasting downhill as mounting loads of raw farm products leave the tracks and travel by truck.*

Railroads traditionally have played a major role in moving raw farm products to mills, packing plants, canneries, and marketplaces. But as a source of revenue for our Nations' rail system, unprocessed farm products are declining in importance.

Although today's trains haul more tonnage of farm commodities than 15 or 20 years ago, volume increases haven't kept pace with growth in agricultural production. Consequently,

substantial shares of this traffic—particularly in products subject to higher freight rates—have been lost to other forms of transportation, primarily to trucks.

And, as railroads have lowered freight charges for most agricultural commodities, shipments of unprocessed farm products have provided a steadily decreasing share of total freight revenue—down from 13 percent in 1954 to less than 10 percent now. In actual dollars, revenue dropped \$135 million.

Data from 1954 through 1969 indicate that railroads fared reasonably well in competing with other transportation systems for traffic in semiperishables. These include—a-

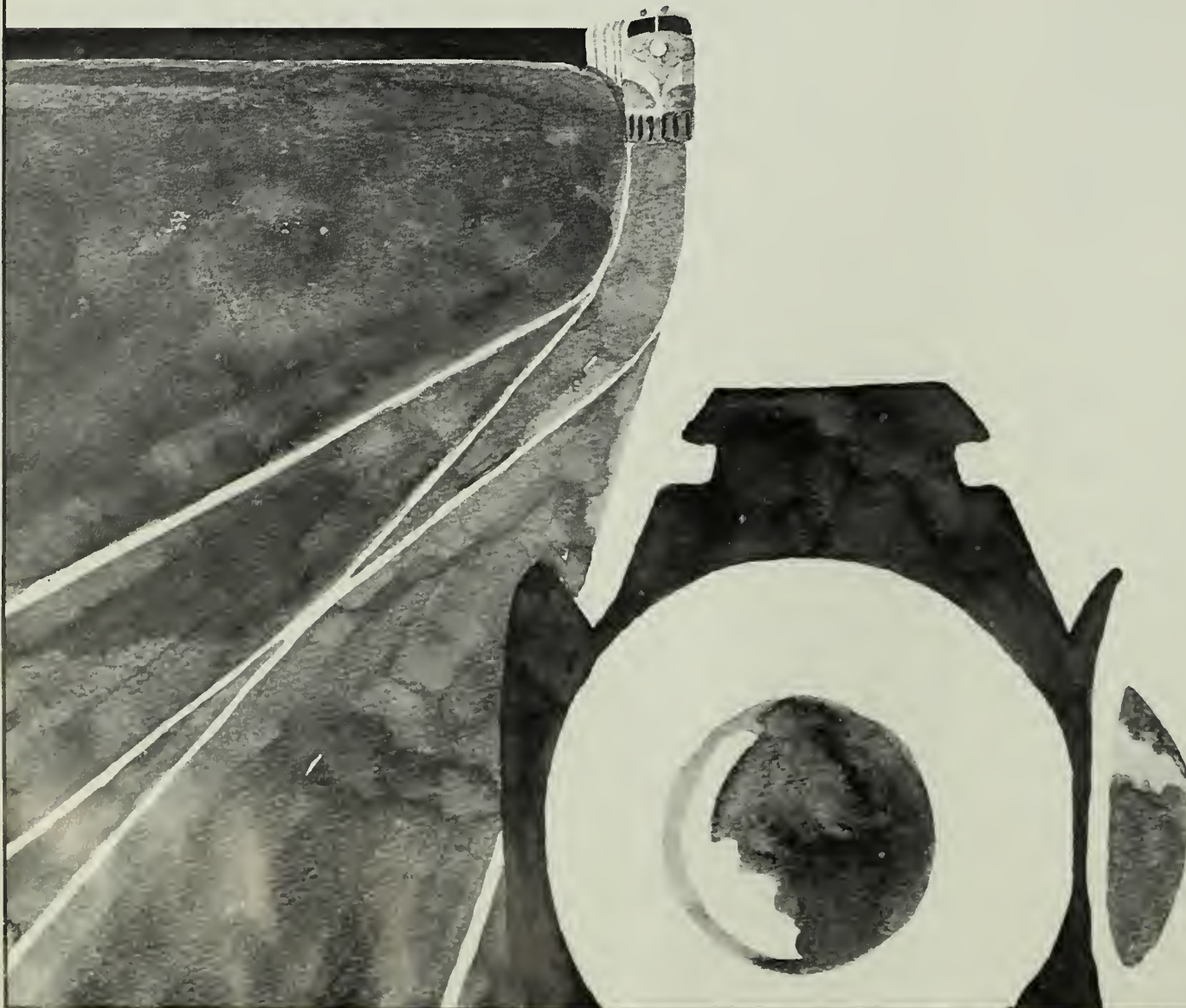
mong other relatively durable commodities—grains, soybeans, cotton, and tobacco.

Grains made up the bulk of semiperishable shipments, accounting for over 6 percent of all train traffic over the 16-year period.

While rail transport of tobacco dropped by around half, grain sorghum and soybeans about doubled in freight tonnage.

The combined increase in rail shipments of semiperishables came to over 20 percent, but it produced less than a 3-percent hike in total freight income.

Gains in semiperishable freight have been partially offset, however, by sharply decreased traffic in per-





ishables—livestock and nearly all classes of fresh fruits and vegetables.

Losses in perishables have this added significance for rail revenues: perishables usually require special handling—such as temperature-controlled cars—and bring railroads a higher rate per ton than nonperishables.

From the mid-1950's to the late 1960's, rail shipments of livestock declined around four-fifths, apples by about half, and citrus products a third. Lettuce and onions, by contrast, showed substantial gains.

The combined volume of all perishable rail freight fell 40 percent. Revenues, meantime, were off almost 30 percent.

Before writing these off as total losses to other forms of transportation—trucks, primarily—two other developments should be considered.

First is the accelerated use of trailers on flatcars. Under this system, a truck trailer with a mixed load of vegetables can be placed on a flatbed railroad car in North Carolina, and hauled overnight to New York. In the morning, the trailer would be removed from the train, hitched to a trucking company cab, and driven to New York customers.

Statistics on traffic of this type aren't available, so it's not possible to gauge just how much rail freight in perishables has declined.

The second development to be considered is the changing structure of the food industry as a whole. As meat packing plants or canneries shift from big cities to points of production, the demand declines for transportation of unprocessed agricultural products and picks up for the processed items. Thus, the drop in livestock hauls was partially offset by increased rail shipments of meat and meat products.

Another significant farm freight

switch is in distance traveled. Though perishables tended to travel farther, the average train ride for most unprocessed farm products is greater than 2 decades ago. Citrus products and potatoes now average 200 additional miles per trip.

Again, changes in market structure have played a part. Grain hauls have become longer because of a trend for feedlots to locate away from major grain producing regions. Bigger exports of farm products have boosted the average distance too, as more foreign-bound freight travels from farm to port.

But more important, the rise in *average* mileage indicates that trucks are absorbing a substantial share of the short haul market.

It's not possible to determine how much rail traffic has been switched to trucks, or to compare volumes of agricultural traffic hauled by each system. Trucks, unlike railroads, are not subject to Federal regulations governing routing and rates for interstate shipments of unprocessed farm products. Statistics are therefore unavailable.

However, some indication of the big switch is given by estimates of total ton-miles of intercity freight carried by trains and trucks. Over the past 25 years, total intercity freight (farm and nonfarm) shipped by rail increased only 30 percent. But trucks nearly quadrupled their volume. Undoubtedly, a substantial share of trucking's gain was in unprocessed agricultural commodities.

The transfer from train to truck can be attributed to several factors, but it's basically a matter of flexibility and convenience. The lack of the same stringent operating regulations affecting trains allows truckers more freedom in setting competitive rates, and in contracting for agricultural shipments.

Trucks can make any number of pickups and deliveries with the same load of farm products. And firms without rail facilities at their doorsteps often find it simpler to ship entirely by truck. (12)

## Bakers Get Big Slice Of Bread's Price Rise

The retail price of a 1-pound loaf of white bread rose more than a penny last year to an average of 24.2 cents.

This was the biggest annual price increase since 1951, but the rate of advance—a little over 5 percent—was about the same as the general upswing in retail food prices.

A more expensive loaf of bread was the result of widening marketing spreads—the price to shoppers less the farm value, or returns to farmers. The retail share of the marketing spread jumped 8 percent, whereas the baking-wholesaling share rose almost 5 percent.

In actual dollars, however, the bakers' and wholesalers' portion of the spread expanded more than the retailers', and accounted for half the rise in bread prices.

The farm value of all ingredients in a pound of bread averaged close to 3½ cents last year. Despite mounting retail prices, the farm value has remained fairly stable, ranging between 3.3 and 3.6 cents over the past 5 years. (15)

## Better Days Ahead For Cotton?

As the 1970/71 cotton picture takes shape, there's a lot in it that augers well for the industry. Utilization prospects, in particular, look better than they did a year or two ago, despite reduced supplies.

Part of the encouraging news is that the outlook for U.S. cotton exports is improving.

While foreign Free World shipments are expected to decline slightly in 1970/71, U.S. exports may gain sharply—possibly accounting for about one-fifth of total trade, up from 17 percent in 1969/70. During August-December, U.S. exports totaled 967,400 bales, 28 percent above the first 5 months of the previous year. Shipments are expected



to exceed year-earlier levels during the balance of 1970/71.

Other encouraging developments for cotton—

The daily rate of mill consumption has increased slightly in recent months. Use in December came to almost 31,000 bales (seasonally adjusted rate), somewhat above the previous month and the year-earlier level. The ratio of inventories to unfilled orders for cotton cloth—normally a reliable short-term indicator of future cotton use—dropped to a 3-year low in November as orders picked up.

In general, cotton has been doing better in recent months in competing with manmades. There are even indications that the losses to manmades, which slowed last year, will be halted in 1970/71. Cotton's market share since 1969 has been holding constant at around 40 percent, despite a slight drop in total cotton usage.

And, the output capacity of man-made fibers—cotton's strongest com-

petitor in the textile market—may increase at a slower rate over the next couple of years.

True, the expansion in manmades' producing capacity will continue at a rapid clip . . . by an estimated average annual rate of about 9 percent during 1971-72. However, this rate of increase is somewhat less than had been projected earlier for 1970-71 by the Textile Economics Bureau.

The Bureau, a private trade organization, now projects total capacity to reach 8.5 billion pounds by November 1972. This level was to have been attained by November 1971, according to the Bureau's previous survey of producers' intentions.

Factors in the curtailment of plans for expansion include the slowdown in economic activity, higher textile imports, and competition from other fibers.

Most of the bigger capacity will be used to produce non-cellulosic fibers, the ones having a chemical base.

The outlook is mixed for manmade staple fibers, some of which compete directly with cotton. Non-cellulosic capacity may increase moderately, while capacity for rayon and acetate may be up only slightly.

*Significantly*, the capacity for polyester staple is projected one-fourth greater. This would be on about half the expansion rate of recent years. Polyester goes to make many of the permanent press textiles and is a formidable competitor with cotton in the shirt and bedsheet market.

The cotton carryover this summer will be down to around 4½ million bales, reflecting larger disappearance, especially exports. This would be the smallest carryover since the summer of 1952, when less than 3 million bales were on hand.

The small increase in the 1970 crop—262,000 bales—is more than offset by a ¾ million bale-decline in beginning stocks. So, the cotton supply of around 16 million bales is almost ½ million below 1969/71 and the smallest since 1947. (13)

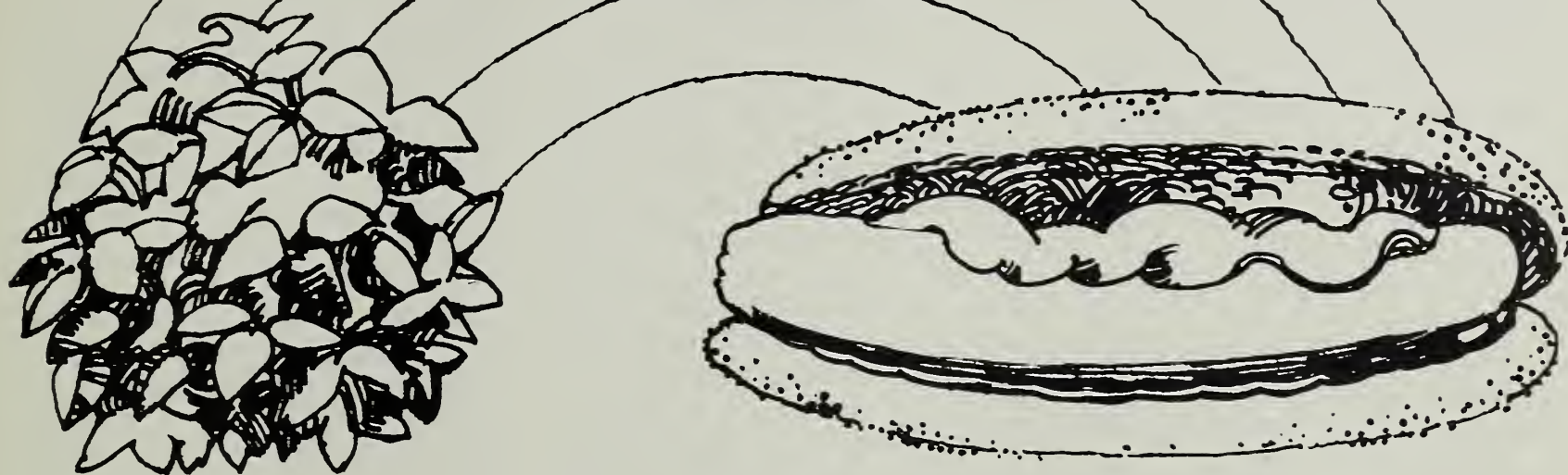
#### MANMADE FIBER PRODUCERS CURTAIL PLANS TO EXPAND CAPACITY

| Fiber             | Output Capacity |               |                     | Percentage Change |         | Average annual rates of Changes planned for— |                               |
|-------------------|-----------------|---------------|---------------------|-------------------|---------|--|-------------------------------|
|                   | November 1968   | November 1970 | Projected Nov. 1972 | 1968-70           | 1970-72 | 1970 and 1971 as of Nov. 1969                | 1971 and 1972 as of Nov. 1970 |
|                   | Million pounds  |               |                     | Percent           |         |  |                               |
| Rayon and acetate |                 |               |                     |                   |         |  |                               |
| Yarn              | 876             | 854           | 823                 | —2.5              | —3.6    | 1.5  | —1.8                          |
| Staple            | 839             | 859           | 904                 | 2.1               | 5.2     | 3.8  | 2.6                           |
| Total             | 1,715           | 1,713         | 1,727               | —0.1              | 0.8     | 2.7  | 0.4                           |
| Noncellulosic     |                 |               |                     |                   |         |  |                               |
| Yarn              | 1,998           | 2,440         | 3,143               | 22.1              | 28.8    | 13.9   | 13.5                          |
| Staple            | 1,810           | 2,378         | 2,864               | 31.4              | 20.4    | 14.6   | 9.7                           |
| Polyster          | 951             | 1,370         | 1,695               | 44.1              | 23.7    | 17.8   | 11.2                          |
| Other             | 859             | 1,008         | 1,169               | 17.3              | 16.0    | 10.6   | 7.7                           |
| Total             | 3,808           | 4,818         | 6,007               | 26.5              | 24.7    | 14.2   | 11.7                          |
| Textile glass     | 516             | 657           | 742                 | 27.3              | 12.9    | 15.8   | 6.3                           |
| Man-made Fibers   |                 |               |                     |                   |         |  |                               |
| Yarn              | 3,390           | 3,951         | 4,708               | 16.5              | 19.2    | 11.4   | 9.2                           |
| Staple            | 2,649           | 3,237         | 3,768               | 22.2              | 16.4    | 11.7   | 7.9                           |
| Total             | 6,039           | 7,188         | 8,476               | 19.0              | 17.9    | 11.5   | 8.6                           |

Source: Textile Economics Bureau



## Soybeans in the Plant Protein Spectrum



Meat, eggs, and dairy products are the best sources of proteins for people. By "best" we mean that they come closest to offering a perfect balance of proteins that the body can readily utilize. The best sources of *plant* proteins are from soybeans, nuts, dry beans, and peas.

Soybeans stand out from the others. In a study of a group of selected protein foods, soybeans were found to be the least-cost source of any protein. The cost of proteins from soybean flour—measured in NPU's, or the net amount of protein the body can use—turned out to be roughly one-tenth the cost of proteins from beef, pork, or fish, and one-sixth that of chicken, eggs, and milk.

The table on page 16 shows relative prices of utilizable proteins. From the data, it is obvious why today's decision-makers in institutional kitchens are interested in substituting soy, whey, and skim milk wherever possible for the more expensive animal proteins. If—as the table shows—utilizable proteins from soy flour cost \$.31 per pound and utilizable proteins from beef cost \$3.26 per pound, there would be a strong incen-

tive to use soy flour in cases where the two products are interchangeable. For example, an institutional cook may prepare a meatloaf of 80 percent ground beef and 20 percent soy grits. Its taste would be almost indistinguishable from an all-beef meatloaf.

In comparing net protein costs from several foods, it cannot be concluded that proteins derived from meat are less desirable than proteins derived from plants. For one thing, the net protein values in the table assume that the proteins within these foods will be used to build body tissue. Not all proteins, however, are used for this purpose. Some are oxidized, or converted into carbohydrates or fat for storage. They still get used, even though they perform a less valuable function than the tissue builders.

Furthermore, meats and other animal-derived foods have functions other than providing proteins. Meats, being high in fat, are a good source of energy. Meats and other animal foods also provide vitamins and minerals. Finally, animal products provide a high level of palatability and eating satisfaction. Thus, the figures

in the table point out relative protein costs among several foods and ignore their other attributes.

The economic advantages of using soy protein will become increasingly important, assuming the taste and texture of soy products are improved upon to gain wider consumer acceptance.

Right now animal products are the main source of protein in this country—providing two-thirds of the protein intake. Prices of animal products make it difficult for families with very low incomes to purchase adequate supplies of protein from this source.

Red meats, and beef in particular, have had steady price increases which, if they continue, will make red meats even higher priced than now, relative to proteins from plants. Other meats, such as poultry, have had smaller price increases, and thus may become an expanding source of high quality animal protein.

At the present rate of increase in the Nation's population, the total protein requirement may grow about 10 percent by 1980. There seems little doubt about our ability to meet the bigger protein needs. The crucial



question gets back to which proteins we will use, i.e., the product mix. This will depend on relative prices of the various products, our tastes and preferences, and on the regulations governing the labels, standards, etc. Consumers will have the final say so in determining what the protein sources will be. Many users will be looking for alternatives and the least cost sources of protein.

| Protein source      | Food price, wholesale | Cost of net utilization protein* |
|---------------------|-----------------------|----------------------------------|
|                     | Dollars per lb.       |                                  |
| Beef .....          | .49                   | 3.26                             |
| Chicken .....       | .33                   | 2.47                             |
| Fish .....          | .45                   | 3.07                             |
| Whey (dry) .....    | .09                   | .84                              |
| Milk (whole) .....  | .07                   | 2.34                             |
| Skim milk (dry) ..  | .22                   | .79                              |
| Eggs .....          | .25                   | 2.09                             |
| Dry beans .....     | .07                   | .65                              |
| Soybean flour ..... | .08                   | .31                              |
| Wheat flour .....   | .07                   | 3.10                             |
| Cottonseed flour .. | .13                   | .58                              |
| Rice .....          | .09                   | 1.71                             |

\* Proportion of nitrogen intake retained by the human body. The prices given are considerably lower than retail prices would be for comparable items.

SOURCE: *Composition of Foods*, Agricultural Handbook No. 8, USDA, and *Amino Acid Content of Food and Biological Data on Proteins*, FAO Nutritional Studies Report No. 24, FAO, Rome, 1970.

Will the alternative proteins be available?

Biochemists have yet to discover a plant protein that can totally replace animal proteins, although soy proteins come very close. Soy proteins are slightly lacking in methionine and lysine. Most animal products, however, contain "complete proteins," i.e. they have a complete assortment of the essential amino acids the body needs for tissue building. Of the animal sources, gelatin is one protein that does not meet these specifications—it is lacking in several amino acids. Unless the full array of essential amino acids is present when the protein is metabolized, the protein gets used for energy purposes—rather than tissue building—and its value then is the same as a carbohydrate.

But the quality of plant protein—which lacks one or the other essential aminos—can be readily improved by adding small amounts of animal protein. Thus, plant and animal protein combinations as cereal and milk, macaroni and cheese, egg and bread, and beans and frankfurters provide a better balanced protein than if the plant protein foods were eaten separately at different meals.

Some of the current research on soy protein is based on the concept that soy products can enhance and extend the proteins from other plant sources. Because they are low in price, they also are mixed with meat items. For these uses, they are called extenders. Many of these not only add proteins (at lower cost), they also have functional properties.

In some forms, soy proteins absorb two or three times their own weight of water and their ability to retain moisture makes them desired by bakers who want freshness in their products. Their use in doughnut mixes keeps the batter from absorbing too much fat. In pancake mixes they keep batter from sticking to the griddle. In bread and cake flours, soy flour raises the protein level.

In certain other products processors use soy proteins as emulsifiers. In comminuted meats (as sausages, hot dogs, luncheon meats, hamburgers, meatloaves, meat balls, pizza sausages, and sloppy joes) they reduce shrinkage, provide needed binding, and retain fat and natural meat juices. Soy grits act as a foam stabilizer in brewing beer.

There are also soy products on the market that are intended to be direct substitutes for other protein foods. One type is made to look and taste like real bacon, chicken, turkey, pork, beef, ham, or fish. These new food items now are being produced by seven firms, and other companies are gearing up for market tests in the future. (See Farm Index, October 1970: Bacon Analog Gets a Trial.)

Besides textured items, the major types of defatted soy proteins are flour and grits, concentrates, and isolates. All four forms come from

clean, dehulled, soybean flakes but differ from each other in their protein content, physical and chemical properties, applications, and prices. Nutritionally valuable, they are comparable with meat in amino acids although lower in methionine and lysine.

CSM (corn/soy/mix) blends corn and soybean flours with skim milk powder. It has been available for several years. As of late 1969, it had been shipped to over 100 developing countries. An advantage is its low cost (8 cents per pound to the Government), and it can be used as an ingredient in soup, bread, or pudding. As a beverage, all it needs is addition of water.

Certain technical problems with soy products still seek solution, and the researchers are looking into them. For example, soy flour and grits characteristically have a bitter-beany taste. Soy flour has an unpleasant mouth feel. They cause flatulence (digestive gases) in humans. Removal of the carbohydrates, as is done for the concentrates and isolates, helps in all three of these problems, but some flavor problems remain.

Assuming these shortcomings will be corrected in the near future, there are still other obstacles to widespread commercial use of some of the soy products: the profusion of rules and regulations governing their introduction into the food industry. These regulations are now being reviewed for possible changes. (16)

## Coffee Urns Displaced By Soft Drink Dispensers

The day of the 15-cent cup of coffee is almost upon us, and in some parts of the country it has already dawned.

A few restaurants—mostly at-work places in metropolitan areas—still offer a 10-cent cup of java. That was about the average price, nationwide, 20 years ago. But by 1970 it was up to 13 cents and is expected to rise further this year. Consequently,



as the coffee prices have gone up, the average U.S. citizen has tended to use less coffee.

Per capita use in 1970 dropped to a little under 13½ pounds (green bean basis). This was a 5-percent drop from 1969 and almost 30 percent below peak consumption in the late 1940's.

The general downtrend in coffee drinking (both instant and regular) actually set in about 1962, whereas the biggest part of the price increase has been since 1967.

Price alone, therefore, does not appear to account for all the coffee beans that haven't been used.

For one thing, a pound of beans makes more cups of coffee than it used to. This increased yield has been due to a combination of factors: use of concentrated, instant coffee; larger imports of less expensive, strong-flavored beans (Robusta); and a seeming tendency of waiters and hostesses to serve weaker coffee.

This leads to the question of quality—a touchy subject in the U.S. coffee industry.

Some people in the trade do link decline in coffee demand to a slip in quality. Others say that coffee quality overall is about as good as always. They relate the downtrend in its use to the uptrend in soft drink and iced tea consumption by the increasing proportion of young people (15-24) in our population.

Soft drink prices rose much more than coffee prices last year, but sales continued to climb.

Retail prices of cola drinks last year were up more than 5 percent from 1969. Carbonated fruit drinks went up nearly 10 percent.

Even so, consumers refreshed themselves to the amount of 22.1 gallons per person during the year—3 percent more than a year earlier. This increase, however, wasn't quite as much as it had been the year before—perhaps because of the ban on cyclamates. Per capita consumption of low-calorie soft drinks, at 1.8 gallons in 1970, was only half the level of 1969. (17)

## The Powerful Rise Of Garlic

"A tossed salad without garlic is like a wedding without flowers," a dietitian once observed. An increasing number of Americans apparently share this view. Garlic's use in 1969 was estimated at half a pound per person, against a third in 1966.

And California, the leading domestic supplier, produced about 73 million pounds last year—double the 1966 crop.

The powerful rise of garlic is partly the result of our recent fascination with gourmet cooking, and the growing popularity of pizza and other highly seasoned foods.

Actually, garlic has been around for a long time. A native of western Asia and the Mediterranean area, it's been cultivated for centuries. The Egyptians found it equally useful for cooking and embalming. And the Romans, convinced of its magical

and medicinal qualities, felt that regular garlic rations made their soldiers more courageous.

In India, according to one English writer, garlic has had enduring use for "improving the voice, intellect, and complexion, promoting the union of fractured bones, and helping to cure all the ills that flesh is heir to."

Garlic was most likely brought by the Spanish to the New World, where, the story goes, it was a smash hit with the Indians.

Americans today find garlic on their grocery shelves year 'round—in a variety of forms. For those who don't care to crush their own, there's a choice of several processed products. These include garlic salt, juice, and instant granulated garlic.

Five times stronger than the raw product, the granulated form is nothing more than pure ripe garlic that's been dehydrated and crystallized. Most of the processing is done in modern California plants located near the growing fields. (18)

## Food Costs To Rise After Late '70 Decline

Retail food costs per household in October-December 1970 showed the first quarterly decline in 3 years, slipping \$20 from the previous 3 months to an annual average of \$1,214.

Meanwhile, the returns to farmers (farm value) for market basket foods fell to an annual rate of \$448—or 7 percent less than in the third quarter of 1970. Decreases were sharpest for meat animals (primarily hogs) poultry, eggs, and fresh fruits and vegetables.

Only part of the drop in farm value was reflected in lower retail food costs because of widening marketing margins. The marketing spread—retail costs minus the farm value of the market basket—rose almost 2 percent over the previous quarter to an average of \$766.

Changes in market basket totals in the final quarter of 1970 were

considerably different from those for the entire year. Steeper retail prices pushed up the retail cost of the market basket \$51, or 4.4 percent in 1970 over the preceding year.

Though returns to farmers fluctuated considerably, the average for the year was only \$2 greater than in 1969.

Pressured by rising operating costs within the food marketing system, the marketing spread increased 7 percent, or \$49. Employee earnings jumped sharply, and prices of containers, packaging, and other services were substantially higher.

This year, consumers can expect their market basket of farm foods to cost a little more than in '70. Widening marketing spreads likely will more than offset anticipated lower returns to farmers.

The rise in retail prices, mainly projected for the second half of this year, will hinge primarily on the movement in farm prices and how much marketing spreads widen. (14)



# India

In the early 1950's, shortly after severing ties with Britain, India launched the most ambitious program of land reform yet attempted by a less developed country.

No other land reform program has been of such large scale—involving an estimated 50 million agricultural holdings.

In another sense land reform in India was regarded as a monumental undertaking: Over a short span of years, the program intended to dismantle a system of land tenure that had gone relatively unchanged for centuries. And it was to be accomplished through democratic procedures.

The separate Indian states began by passing laws to abolish the "intermediaries," persons whose job it was to collect rents and taxes from tenants.

But in practice, the intermediaries acted as virtual proprietors of the land they were paid to watch over. Tenants' rights became subordinated to landlords' rights.

Under the reforms to do away with the intermediaries, for the first time tenants were able to deal directly with the states.

Other legislation sought to control landlord-tenant relations, including rent controls. Rents were to be assessed on a fairer basis. Tenants also had the option to buy land.

Other enactments set limits on the size of holding a cultivator could own. Anything in excess of these ceilings was to be reclaimed by the various states and distributed to landless farmers and others.

A more equitable distribution of land was the primary goal of land reform from the outset, and continues to be under the present 5-year plan for India's development.

Reason for this emphasis is fairly obvious. Both unemployment and underemployment are severe problems for India's immense work force of 100 million people. Agriculture being

*LAND REFORM was a monumental undertaking. No other country has tried a land reform program that involves so many agricultural holdings on so large a scale.*





the mainstay of the economy, the farm sector is seen the most likely place to create jobs for a population growing at the rate of some 12 million a year.

However, by one survey of land use in 1949/50, 70 percent of India's 808 million acres were already being used for agriculture. A study in the 1960's showed half of the area was in crops—the highest proportion of any country.

Plainly, the opportunities for bringing more land into production for use by the millions of persons yet unborn, are indeed limited. One alternative is to put the available land to better and more equitable use . . . to allow more people to farm it through a redistribution of holdings.

Now, after almost 2 decades of the land reform program, the results are emerging. They have been disappointing in some respects, and not everything the first 5-Year Plan (1951–56) had envisioned.

Was it because the measures were not implemented swiftly enough? Partly so, although it's also true the reforms were effected by democratic process. As such, a slow pace of implementation is to be expected. A case can also be made that perhaps Indian officials set their sights too high, expected more than a land reform program could possibly achieve in so short a time.

As to the primary objective—land redistribution—by 1967/68 over 100,000 families had settled on some 385,000 acres that had been reclaimed by the Indian states.

Still to be allocated as of 1968 were almost 3 million acres. These would provide  $6\frac{1}{6}$  acre tracts for about 400,000 additional families.

Three million former renters have become owners of nearly 9 million acres, owing to the provisions encouraging tenants to buy the land they rent. For many of those who still rent, the rates have been reduced.

The number of intermediaries has been reduced, if they have not been eliminated entirely.

The work force in agriculture in

### *New Foods In India*

In urban India, the winds of change in eating habits point distinctively in the direction of non-traditional foods.

Food grains still make up over 70 percent of the country's food supply. But this proportion is declining, as more people add potatoes, fresh vegetables and bananas to their basic diet of cereals and pulses. The consumption of packaged foods—like biscuits, breakfast cereals, bottled soft drinks and beverage concentrates—is also increasingly rapidly among the more than 100 million urbanites.

The most striking changes are in the diets of people living in the wealthier neighborhoods of the largest cities. There, the new foods range from chicken meat and eggs to ice cream and processed fruits and vegetables.

Restaurant sales of sandwiches are expanding so fast that bread bakeries have a hard time keeping up with the demand. Sales of sandwich bread have been rising about 30 percent annually. In Delhi and some other cities, ice cream sales have doubled every year since 1967.

The larger the city, the greater have been the changes in the diet, with the exception of some of the newer industrial cities where per capita income is relatively high. Industrial workers in Bombay, for example, earn over \$1 per day—or triple the average earnings on farms or in service trades in villages.

The vast rural population still has a low per capita use of non-traditional foods and beverages. However, with extra income from sales of the new high yielding varieties of wheat and rice, more farmers are going to the cities to shop. While there, they may for the first time attend a cinema, buy popcorn, biscuits and soft drinks. (20)

1951–61 grew by 30 million to 130 million persons—without a rise in unemployment. Agriculture meanwhile provided jobs for about 70 percent of the national work force.

The living conditions of farm workers as a whole improved. Villages have been given a decisive role in maintaining land records, finding

lands for displaced tenants and finding settlers for lands to be redistributed, and in efforts to reclaim wastelands for various agricultural uses.

In a 1969 review of the reform programs of the various states, the Prime Minister of India urged, among other things, that small farmers be guaranteed a fair share of fertilizer, seed, and irrigation facilities . . . and that the ceiling provision on holdings be more effectively enforced than in the past.

The Fourth 5-Year Plan (1971–76) calls for vigorous implementation of land reform laws already on the books. Further reforms are needed, however, in the procedures for taxing landholders, in the system of land records, and in the types of controls on land use and urban settlement. (19)

### **Prices and Weather Favor Brazil's Soybeans**

Brazil had no difficulty last year maintaining its place as the world's third largest soybean producer, though it was far outranked by the United States and Mainland China.

Brazil's harvest in 1970 rose 26 percent to approach the  $1\frac{1}{2}$  million metric ton mark (official estimate was 1,332,000 tons). U.S. production was about 40 million tons; China's was around 7 million.

Favorable prices encouraged Brazilians to increase soybean acreage. Good weather boosted yields. And soybeans pushed ahead of cottonseed (1.2 million metric tons) and peanuts (750,000 metric tons, in-shell).

Soybean growers in the southern States of Parana and Rio Grande do Sul have been very successful in rotating soybeans with wheat, using the same harvesting machinery for both and ending up with two cash crops a year.

Insect infestation reduced cottonseed output in 1970, and Brazilian vegetable oil producers made greater use of soybeans. As a result, soybean exports dropped to 290,000 tons from



310,000 in 1969. Exports of soybean cake and meal, however, were up a big 69 percent to 500,000 tons.

Under Brazil's newly published 4-year plans, the 1973 goal for unprocessed soybean exports is set at 500,000 tons. (22)

## Food Aid Makes a Turn

Economic aid to the world's developing nations mounted steadily throughout most of the 1960's as agricultural assistance took on new dimensions.

In every year of the decade—with the exception of 1962—a new post-war record was established for net flows of bilateral and multilateral aid from the major industrial countries. The most recent tally, for 1969, places economic aid in that year at \$13.6 billion. This includes assistance from private as well as public (mostly government) sources.

The leading donors in 1969 were the U.S., with \$4.6 billion; West Germany \$2.0 billion; France \$1.7 billion; Japan \$1.3 billion; and the U.K. \$1.1 billion.

The leading recipients, in order of ranking, were Asia, Latin America, and Africa.

The agricultural components of economic aid changed during the 1960's. Donor countries, as the decade wore on, gave less assistance in the form of commodities, and more in the form of capital and technical assistance.

Total food aid dropped from \$1.6 billion in 1963 to \$1.2 billion in 1968, latest year for which data on worldwide food aid were compiled. Meanwhile, by 1966 other kinds of agricultural assistance had tripled from the \$385-million average of 1962-64.

Largely responsible for the reduction in food aid were declines in agricultural exports under the United States P.L. 480 (Food for Peace) Program, following sharply increased production in many of the less developed countries. This—along with smaller amounts of U.S.

private aid—resulted in a 20-percent decline in overall U.S. economic aid in 1969 from the year-earlier level. Even so, U.S. assistance made up one-third of 1969 aid from all countries combined.

The fall-off in worldwide food aid consisted entirely of bilateral assistance, that given directly by the donating country to the recipient. However, multilateral food aid given through international agencies went up during the sixties, rising from \$44 million in 1963 to \$91 million in 1968.

Most of this increase represents disbursements by the United Nations' World Food Program. WFP food aid grew from a value of \$5 million in 1963 to \$72 million in 1969. Projections for 1976 call for \$251 million.

The United States contributes about half the food disbursed by the WFP. Canada provides another 12 percent. (21)

## Polish Meat Dilemma Offshoot of Foul Weather

Poland's agricultural growth has averaged about 3 percent per year—steeper than most major developed countries. In 1970, however, output dropped below trend for the second straight year.

Supplies of domestic grain and potatoes available for feeding in 1970/71 may be 1.5 million tons smaller than those of a year earlier.

Grain imports during 1970/71 are projected to reach about 3 million tons, compared with around 2.5 million tons in 1969/70.

Imports of grain are not expected to equal production losses, however, as the drop in livestock numbers has diminished domestic feed requirements.

Severe weather—drought, flooding, and winterkill—substantially reduced feed grain crops. As a result, cattle and hog numbers dwindled.

The reduced livestock inventories led ultimately to a lower meat output. Government meat purchases began declining last August, reaching 17 percent below year-earlier levels in October. And production wasn't expected to pick up over the past winter.

Through September, meat exports were down about 12,000 tons from 1969. But hard currency payment obligations virtually preclude further export reductions, and the tight domestic meat situation continues.

Meat imports—mostly from Mainland China—provide some relief, but were up only 2,000 tons last fall. Increased imports are likely for the near future.

The 1970 goal for per capita meat use was almost reached in 1967. Since then, however, the portion has leveled off, failing to keep pace with consumer demands. Although figures are still incomplete, meat consumption per person probably dropped in 1970, and is expected to remain at a lower level through 1971. (23)

### POLAND'S PRODUCTION, TRADE AND CONSUMPTION OF MEAT

| Year              | Production <sup>1</sup> | Exports           |        |       | Imports,<br>fresh | Per capita<br>consumption |
|-------------------|-------------------------|-------------------|--------|-------|-------------------|---------------------------|
|                   |                         | Fresh             | Canned | Bacon |                   |                           |
|                   |                         | 1,000 metric tons |        |       |                   | Kilograms                 |
| 1960              | 1,646                   | 25                | 37     | 48    | 12                | 42.5                      |
| 1966              | 1,945                   | 50                | 55     | 52    | 49                | 51.0                      |
| 1967              | 1,974                   | 62                | 57     | 55    | 40                | 52.3                      |
| 1968              | 2,005                   | 64                | 58     | 54    | 75                | 52.2                      |
| 1969              | 2,079                   | 71                | 55     | 50    | 34                | 52.6                      |
| 1970 <sup>2</sup> | 2,020                   | 60                | 55     | 45    | 40                | 52.6                      |

<sup>1</sup> Including pork fat, but excluding variety meats.

<sup>2</sup> Preliminary.



# Recent Publications

**COTTON GIN OPERATING COSTS IN WEST TEXAS: 1968-69.** Charles A. Wilmot, Dale L. Shaw, and Zolon M. Looney, Marketing Economics Division. MRR 903.

An analysis of gin operating costs for the 1968-69 season in West Texas saw a reversal in trends of recent years. For the first time since 1965, ginning volumes in West Texas showed an increase over the previous year.

**MAJOR STATISTICAL SERIES OF THE U.S. DEPARTMENT OF AGRICULTURE—HOW THEY ARE CONSTRUCTED AND USED. VOL. 4: AGRICULTURAL MARKETING COSTS AND CHARGES.** Agr. Handbook No. 365.

This handbook is one of several that serve to update *Agriculture Handbook No. 118, Major Statistical Series of the U.S. Department of Agriculture*, published in 10 volumes during 1957-60. It incorporates a number of changes in methods and coverage over the past 10 years.

**WORLD DEMAND PROSPECTS FOR BANANAS IN 1980 WITH EMPHASIS ON TRADE BY LESS DEVELOPED COUNTRIES.** Jon E. Falck and Arthur B. Mackie, Foreign Development and Trade Division. FAER 69.

Alternative projections of world demand for bananas in the coming decade indicate that consumption and trade will increase from 4.6 million tons in 1944-66 to a range of 6.5 to 7.3 million metric tons in 1980. (See December 1970 Farm Index.)

**HAY HARVESTING PRACTICES AND LABOR USED, 1967: 48 STATES.** Walter L. Ferguson and Paul E. Strickler, Farm Production Economics Division, and Richard C. Max, Statistical Reporting Service. Stat. Bull. No. 460.

Relatively new practices, that some farmers are using in the hay harvest, permit substantial labor savings.

**THE 1970 AGRICULTURAL DATA BOOK FOR THE FAR EAST AND**



*The publications listed here are issued by the Economic Research Service and cooperatively by the State universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective States.*

**OCEANIA,** Foreign Regional Analysis Division. ERS-For 267.

This is the fourth annual agricultural report on current and historical facts on production and trade of farm products of this major food deficit area.

**FAMILY AND HIRED LABOR USED ON U.S. FARMS IN 1969.** Walter E. Sellers Jr., Farm Production Economics Division. Stat. Bull. 459.

Family workers were still the major source of farm manpower in 1966. While over half the small farms (sales under \$2,500) relied on family labor, only 6 percent of the large-scale farms operated with just family labor.

**THE EGG PRODUCTS INDUSTRY: STRUCTURE, PRACTICES, AND COSTS 1951-69.** Fred L. Faber, Marketing Economics Division. MRR 917.

Per capita consumption of liquid, frozen, and dried eggs has risen since

the early 1950's. But per capita consumption of shell eggs has declined to more than offset this amount. Per capita use of all eggs dropped 20 percent during 1951-69. Of total egg production the share of eggs for breaking—6.6 percent in 1951—was up to 10 percent by the late 1960's.

**LABOR USED ON U.S. FARMS, 1964 AND 1966: REVISED OCTOBER 1970.** Walter E. Sellers Jr., Farm Production Economics Division. Stat. Bull. 456.

Of farms with annual sales of \$5,000 or more, those affected most by increases in labor costs and manpower shortages in 1964 and 1966 were farms with sales of \$20,000 and up. These farms comprised 18 percent of all farms surveyed, produced 68 percent of all farm products sold and used 68 percent of all man-hours of hired farm labor in 1966.

**FOREIGN GOLD AND EXCHANGE RESERVES: CURRENT TRENDS.** Carolee Santmyer, Foreign Development and Trade Division, FGER 9.

Total free world reserves were \$83 billion at the close of fiscal 1970. They were up \$6.7 billion from reserves a year earlier. However, the liquidity ratio (reserves as a percentage of imports) declined for the third consecutive year, to 28.4 percent. Average world prices for primary products in fiscal 1970 were 3 to 4 percent higher than in the previous year.

**PROJECTION OF CALIFORNIA AGRICULTURE TO 1980 AND 2000: POTENTIAL IMPACT OF SAN JOAQUIN VALLEY WEST SIDE DEVELOPMENT.** Gerald W. Dean and Gordon A. King, Univ. of Cal. Agr. Expt. Sta., in cooperation with Farm Production Economics Division GFRR 312.

Although a land shortage is not imminent, some of the bastions of California's agriculture will have to make room for more people needing places to live and work. (See December 1970 Farm Index.)



**FACTORS AFFECTING ACREAGE DIVERTED UNDER THE U. S. FEDERAL-GRAIN PROGRAM.** Thomas A. Miller, Farm Production Economics Division, and Stanley H. Hargrove, Colorado State University ERS 453.

Since 1961, U.S. feed-grain programs have been adjusted annually to balance the production and utilization of feed grains. This report examines the impact of economic circumstances on annual withdrawals of acreage from production during 1961-69.

**A SURVEY OF AGRICULTURE IN GUATEMALA.** Kathryn H. Wylie, Foreign Regional Analysis Division. ERS-For. 305.

Agricultural production in Guatemala, even on a per capita basis, has increased substantially during the past 10 to 15 years. The gain is credited to higher coffee and cotton output in the early 1960's and increased food production later in the decade. (See December 1970 Farm Index.)

**THE BALANCE SHEET OF THE FARMING SECTOR: 1970.** Carson D. Evans, Robert D. Reinsel, Allen G. Smith and Forest G. Warren, Farm Production Economics Division. AIB-350.

This publication brings together major asset and liability accounts into one statement. This is the 26th issue in the series. Comparable estimates are available annually beginning with 1940.

**CHANGING FOOD CONSUMPTION PATTERNS IN THE REPUBLIC OF KOREA.** Amjad H. Gill, Foreign Regional Analysis Division. ERS For. 306.

Korean demand for agricultural products continues to exceed domestic production. The gap between the two is expected to widen as urbanization and industrialization accelerate. Increased imports, and perhaps use of substitute foods, are possible. (See March 1971 Farm Index.)

**RESTRICTING THE USE OF PHENOXY HERBICIDES-COSTS TO FARMERS.** Austin S. Fox, Robert P. Jenkins, and Paul A. Andrelenas, Farm Production Economics Division, and John T. Holstun Jr. and Dayton L. Klingman, Agricultural Research Service. AER 194.

This report deals with the economic effects on U.S. farmers that would follow a prohibition on use of all phenoxy herbicides. The report summarizes trends in production and utilization of phenoxy herbicides and discusses possible alternative weed control practices that are already in use. (See December 1970 Farm Index.)

**FOOD CONSUMPTION PRICES EXPENDITURES: SUPPLEMENT FOR 1969.** Economic and Statistical Analysis Division. Supplement to AER 138.

This supplement updates *Food Consumption, Prices, and Expenditures*, issued July 1969.

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NOTE: Unless otherwise indicated, authors are on the staff of the Economic Research Service (ERS) with their divisions designated as follows: Economic and Statistical Analysis Division (ESAD); Economic Development Division (EDD); Farm Production Economics Division (FPED); Foreign Development and Trade Division (FDTD); Foreign Regional Analysis Division (FRAD); Marketing Economic Division (MED); and Natural Resource Economics Division (NRED).



# Economic Trends

| Item  | UNIT OR<br>BASE PERIOD | 1967   | 1970<br>Year       | Jan.               | Nov.               | 1971<br>Dec.       | Jan.               |
|---|------------------------|--------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Prices:</b>  |                        |        |                    |                    |                    |                    |                    |
| Prices received by farmers                                    | 1967 = 100             | —      | 110                | 113                | 106                | 104                | 107                |
| Crops   | 1967 = 100             | —      | 101                | 96                 | 102                | 100                | 103                |
| Livestock and products  | 1967 = 100             | —      | 118                | 125                | 110                | 108                | 110                |
| Prices paid, interest, taxes and wage rates                   | 1967 = 100             | —      | 114                | 112                | 115                | 116                | 117                |
| Family living items   | 1967 = 100             | —      | 114                | 112                | 115                | 116                | 116                |
| Production items  | 1967 = 100             | —      | 109                | 108                | 111                | 111                | 112                |
| Parity ratio  |                        | 74     | 72                 | 75                 | 68                 | 67                 | 68                 |
| Wholesale prices, all commodities                             | 1967 = 100             | —      | 110.4              | 109.3              | 110.9              | 111.0              | 111.8              |
| Industrial commodities  | 1967 = 100             | —      | 110.0              | 108.3              | 111.3              | 111.7              | 112.2              |
| Farm products   | 1967 = 100             | —      | 111.0              | 112.8              | 107.0              | 107.1              | 108.9              |
| Processed foods and feeds                                     | 1967 = 100             | —      | 112.0              | 112.0              | 111.7              | 110.7              | 111.8              |
| Consumer price index, all items                               | 1967 = 100             | —      | 116.3              | 113.3              | 118.5              | 119.1              | 119.2              |
| Food  | 1967 = 100             | —      | 114.9              | 113.5              | 114.9              | 115.3              | 115.5              |
| <b>Farm Food Market Basket: <sup>1</sup></b>                  |                        |        |                    |                    |                    |                    |                    |
| Retail cost   | Dollars                | 1,080  | 1,225              | 1,223              | 1,209              | 1,213              | 1,212              |
| Farm value  | Dollars                | 414    | 480                | 502                | 448                | 437                | 450                |
| Farm-retail spread  | Dollars                | 666    | 745                | 721                | 761                | 776                | 762                |
| Farmers' share of retail cost                                 | Percent                | 38     | 39                 | 41                 | 37                 | 36                 | 37                 |
| <b>Farm Income: <sup>2</sup></b>                              |                        |        |                    |                    |                    |                    |                    |
| Volume of farm marketings                                     | 1967                   | 100    | 103                | 117                | 136                | 117                | 114                |
| Cash receipts from farm marketings                            | Million dollars        | 42,693 | 48,678             | 4,369              | 5,079              | 4,219              | 4,200              |
| Crops   | Million dollars        | 18,434 | 79,589             | 1,853              | 2,781              | 1,984              | 1,900              |
| Livestock and products  | Million dollars        | 24,259 | 29,089             | 2,516              | 2,298              | 2,235              | 2,300              |
| Realized gross income <sup>3</sup>                            | Billion dollars        | 48.8   | 56.2               | —                  | —                  | 55.8               | —                  |
| Farm production expenses <sup>3</sup>                         | Billion dollars        | 34.5   | 40.4               | —                  | —                  | 40.9               | —                  |
| Realized net income <sup>3</sup>                              | Billion dollars        | 14.3   | 15.8               | —                  | —                  | 14.9               | —                  |
| <b>Agricultural Trade:</b>                                    |                        |        |                    |                    |                    |                    |                    |
| Agricultural exports  | Million dollars        | —      | 7,174              | 525                | 719                | 739                | 672                |
| Agricultural imports  | Million dollars        | —      | 5,667              | 491                | 435                | 509                | 507                |
| <b>Land Values:</b>   |                        |        |                    |                    |                    |                    |                    |
| Average value per acre  | 1967 = 100             | —      | <sup>5</sup> 115   | <sup>5</sup> 115   | <sup>6</sup> 118   | <sup>6</sup> 118   | <sup>6</sup> 118   |
| Total value of farm real estate                               | Billion dollars        | —      | <sup>5</sup> 207.3 | <sup>5</sup> 207.3 | <sup>6</sup> 210.7 | <sup>6</sup> 210.7 | <sup>6</sup> 210.7 |
| <b>Gross National Product: <sup>3</sup></b>                   |                        |        |                    |                    |                    |                    |                    |
|   | Billion dollars        | 793.9  | 976.5              | —                  | —                  | 989.9              | —                  |
| Consumption   | Billion dollars        | 492.1  | 616.7              | —                  | —                  | 627.0              | —                  |
| Investment  | Billion dollars        | 116.6  | 135.7              | —                  | —                  | 137.1              | —                  |
| Government expenditures                                       | Billion dollars        | 180.1  | 220.5              | —                  | —                  | 223.2              | —                  |
| Net exports   | Billion dollars        | 5.2    | 3.6                | —                  | —                  | 2.6                | —                  |
| <b>Income and Spending: <sup>4</sup></b>                      |                        |        |                    |                    |                    |                    |                    |
| Personal income, annual rate                                  | Billion dollars        | 629.3  | 801.0              | 777.8              | 812.6              | 817.5              | 825.4              |
| Total retail sales, monthly rate                              | Million dollars        | 26,151 | 30,371             | 29,570             | 30,208             | 30,441             | —                  |
| Retail sales of food group, monthly rate                      | Million dollars        | 5,759  | 6,785              | 6,674              | 6,866              | 6,966              | —                  |
| <b>Employment and Wages: <sup>4</sup></b>                     |                        |        |                    |                    |                    |                    |                    |
| Total civilian employment                                     | Millions               | 74.4   | 78.6               | 78.9               | 78.6               | 78.5               | 78.9               |
| Agricultural  | Millions               | 3.8    | 3.5                | 3.4                | 3.4                | 3.4                | 3.4                |
| Rate of unemployment  | Percent                | 3.8    | 4.9                | 3.9                | 5.9                | 6.2                | 6.0                |
| Workweek in manufacturing                                     | Hours                  | 40.6   | 39.8               | 40.3               | 39.6               | 39.6               | 39.7               |
| Hourly earnings in manufacturing, unadjusted                  | Dollars                | 2.83   | 3.36               | 3.29               | 3.39               | 3.46               | 3.49               |
| <b>Industrial Production: <sup>4</sup></b>                    |                        |        |                    |                    |                    |                    |                    |
|   | 1967 = 100             | —      | 106                | 108                | 102                | 104                | 104                |
| <b>Manufacturers' Shipments and Inventories: <sup>4</sup></b> |                        |        |                    |                    |                    |                    |                    |
| Total shipments, monthly rate                                 | Million dollars        | 45,712 | 55,516             | 55,070             | 54,068             | 55,370             | —                  |
| Total inventories, book value end of month                    | Million dollars        | 82,825 | 99,698             | 96,200             | 100,032            | 99,698             | —                  |
| Total new orders, monthly rate                                | Million dollars        | 45,928 | 54,953             | 54,119             | 54,291             | 55,766             | —                  |

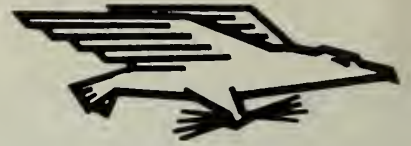
<sup>1</sup> Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1959-61—estimated monthly. <sup>2</sup> Annual and quarterly data are on 50-State basis. <sup>3</sup> Annual rates seasonally adjusted fourth quarter. <sup>4</sup> Seasonally adjusted. <sup>5</sup> As of November 1, 1969. <sup>6</sup> As of November 1, 1970.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business), and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).



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